

### REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the following discussion and present amendments, is respectfully requested.

Claims 1-7, 9-16, 18-25, and 27-36 are pending. Claims 1, 10, 19, 31, 33, and 35 are amended. Support for the amendments to Claims 1, 10, 19, 31, 33, and 35 can be found in now-canceled Claims 8, 17, and 26, for example. No new matter is added.

In the outstanding Office Action, Claims 1, 10, 19, and 28-36 were rejected under 35 U.S.C. § 103(a) as obvious over Watabe (Japanese Patent Pub. 11-070701, herein "Watabe") in view of Sugiyama (U.S. Patent No. 5,737,665, herein "Sugiyama"). Claims 2, 6, 7, 11, 15, 16, 20, 24, and 25 were rejected under 35 U.S.C. § 103(a) as obvious over Watabe and Sugiyama and further in view of Sasanuma (U.S. Patent No. 5,583,644, herein "Sasanuma"). Claims 3, 12, and 21 were rejected under 35 U.S.C. § 103(a) as obvious over Watabe, Sugiyama, and Aruga et al. (U.S. Patent No. 6,367,992, herein "Aruga"). Claims 4, 13, and 22 were rejected under 35 U.S.C. § 103(a) as obvious over Watabe, Sugiyama, and Overall et al. (U.S. Patent No. 5,797,061, herein "Overall"). Claims 5, 14, and 23 were rejected under 35 U.S.C. § 103(a) as being obvious over Watabe, Sugiyama and Wiklof et al. (U.S. Patent No. 6,618,162, herein "Wiklof"). Claims 8, 17, and 26 were rejected under 35 U.S.C. § 103(a) as obvious over Watabe, Sugiyama, and Gast et al. (U.S. Patent No. 6,076,915, herein "Gast"). Claims 9, 18, and 27 were rejected under 35 U.S.C. § 103(a) as obvious over Watabe, Sugiyama, and Sasanuma.

Regarding the rejection of Claim 1 as obvious over Watabe in view of Sugiyama, that rejection is respectfully traversed by the present response.

Amended Claim 1 recites:

A printer controller configured to generate pattern data for use in a tone adjusting process, said printer controller comprising:

a selecting unit configured to select a dot size of a reference tone pattern by varying a number of pixels forming each dot of the reference tone pattern; and

a generating unit configured to generate and output to a printer device said reference tone pattern having the dot size selected by said selecting unit and tone adjusting patterns having tones of a predetermined range including a reference tone of said reference tone pattern such that the printer device prints the reference tone pattern and the tone adjusting patterns on a recording medium for evaluation in the tone adjusting process,

wherein said generating unit is configured to generate said reference tone pattern and the tone adjusting patterns such that said reference tone pattern includes a central portion and reference sector portions arranged intermittently around said central portion, the tone adjusting patterns include adjusting sector portions arranged intermittently around said central portion and each respectively located between two of the reference sector portions, whereby each of the adjusting sector portions has three sides respectively adjacent to said central portion and two reference sector portions.

Accordingly, the reference tone pattern includes a central portion and reference sector portions arranged intermittently around the central portion. The tone adjusting patterns include adjusting sector portions arranged intermittently around the central portion. Each adjusting sector portion is located between two of the reference sector portions. Each of the adjusting sector portions has three sides adjacent to the central portion and two of the reference sector portions.

One non-limiting example of the above described arrangement can be seen in Fig. 5 of the present application. In the non-limiting embodiment depicted in Fig. 5, the reference tone pattern is indicated by reference (B), and the tone adjusting patterns are indicated by references A(1)-A(7). The tone adjusting patterns are arranged intermittently between the wedge shaped reference sector portions of the reference tone pattern (B). Thus, one side of each of the tone adjusting pattern A(1)-A(7) is adjacent to the central portion of the reference tone pattern, and two sides of the tone adjusting patterns A(1)-A(7) are adjacent to two reference sector portions.

Inasmuch as amended Claim 1 incorporates the features of now-canceled Claim 8, Applicant addresses the rejection of now-canceled Claim 8 in the discussion of amended

Claim 1. The outstanding Office Action acknowledges that Watabe and Sugiyama do not disclose the above-noted features of amended Claim 1.<sup>1</sup> The outstanding Office Action relies on Gast for the above-noted features.<sup>2</sup>

Gast, however, describes a rectangular matrix of test patterns (81-87). As shown in Fig. 5, each test pattern includes two sets of lines, one set from a first printing head and a second from a second printing head. Gast progressively moves one printing head in a horizontal direction such that the vertical lines printed by that printing head are progressively printed in a slightly translated position relative to the vertical lines printed by the printing head. By doing so, Gast allows a detector to detect an arrangement in which the vertical lines are optimally aligned by detecting which test pattern has the most unprinted background area. Thus, Gast is related to **registration (relative positioning)** of printed patterns and not to the density or depth of tone of the printed patterns.

In an alternative embodiment shown in Fig. 9, Gast prints one pattern (71) and another pattern (73) roughly one on top of the other. Sample (72) shows the image (71) printed slightly to the left of image (73). Sample (74) shows the image (71) more closely aligned with the image (73). Sample (76) shows the images (71) and (73) perfectly aligned one on top of the other. Like the embodiment of Fig. 5, the registration patterns cover less of the printed medium when the patterns are perfectly aligned. Thus, Gast intends to print the patterns overlap without misalignment.

Nowhere in Gast is a reference tone pattern that includes a central portion and reference sector portions arranged intermittently around the central portion disclosed. Nor are tone adjusting patterns arranged intermittently around the nonexistent central portion. Further, Gast fails to disclose that the tone adjusting patterns have three sides, one adjacent

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<sup>1</sup> Outstanding Office Action, page 11, item 9.

<sup>2</sup> Outstanding Office Action, page 12, continuation of item 9.

the central portion and two adjacent reference sector portions. None of the shapes in any of the figures in Gast can reasonably be characterized as disclosing the above-noted features.

Indeed, Gast fails to disclose a reference **tone** pattern and/or a **tone adjusting** pattern at all. Rather, Gast is unconcerned with tone. Gast is instead concerned with **registration**, i.e., relative position, of printed images printed by two separate printing heads. Accordingly, Applicant respectfully submits that no reasonable combination of Watabe, Sugiyama, and Gast discloses all of the features of amended independent Claim 1.

Further, even assuming *arguendo* that Gast disclosed a reference tone pattern or a tone adjusting pattern, to arrange the printed reference patterns of Gast in the same arrangement as recited in amended independent Claim 1 would defeat the purpose for which Gast was designed. Gast states:

Each set 70, 74, 78 for horizontal calibration includes a plurality of vertical bars spaced apart along the horizontal axis 26. Conversely, each set 72, 76, 80 for vertical calibration includes a plurality of horizontal bars spaced apart along the vertical axis 23. Although bars are shown and described, circles, diamonds, squares or other shapes may be used. **Each test pattern 70-80 includes two portions. Each portion is of the same size and shape.** One portion is formed of ink drops from the reference pen 18 printhead, while the other portion is formed of ink drops from the printhead being calibrated. Thus sets 70, 72 include magenta ink drops from the reference pen 18 printhead and black ink drops from the pen 14 printhead. Sets 74, 76 include magenta ink drops from the reference pen 18 printhead and cyan ink drops from the pen 16 printhead. Sets 78, 80 include magenta ink drops from the reference pen 18 printhead and yellow ink drops from the pen 20 printhead.<sup>3</sup>

Gast further states, in Claim 1:

A method for calibrating image registration for two inkjet printheads, each printhead including a plurality of inkjet nozzles, the method comprising the steps of:

automatically printing a first plurality of test patterns onto a media sheet, each one test pattern of the plurality of test patterns including a first portion printed with a first inkjet

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<sup>3</sup> Gast, col. 7, lines 33-49 (emphasis added).

printhead and a second portion printed with a second inkjet printhead, **wherein the first portion and second portion are of the same shape**, wherein image registration of one of said two inkjet printheads is varied automatically among each one of the plurality of test patterns;

sensing reflectance of each one test pattern of the plurality deriving a reflectance value for said each one test pattern of the plurality of test patterns, said derived reflectance value indicative of the sensed reflectance, and selecting the image registration corresponding to a select test pattern of the plurality of test patterns which has a reflectance value indicative of said select test pattern having the most unprinted background area.<sup>4</sup>

Accordingly, Gast requires all of its registration patterns to be identical so that, in an optimal arrangement, one image lies perfectly on top of another image. If the two patterns were not identical, then it would be possible to move one pattern relative to another without changing the amount of unprinted background area. Thus, arranging the registration patterns in accord with the arrangement of reference tone pattern and tone adjusting patterns recited in amended Claim 1 would defeat the purpose for which Gast was intended.

MPEP § 2143.01(V) states:

**THE PROPOSED MODIFICATION CANNOT RENDER  
THE PRIOR ART UNSATISFACTORY FOR ITS  
INTENDED PURPOSE**

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

Thus, Applicant respectfully submits that a person of ordinary skill in the art would not combine Gast with Watabe and Sugiyama such that the invention recited in amended Claim 1 would be the result because to do so would render Gast unsatisfactory for its intended purpose. Accordingly, Applicant respectfully submits that amended independent Claim 1

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<sup>4</sup> Gast, col. 12, lines 8-19 (emphasis added).

patentably distinguishes over any reasonable combination of the cited references for at least the reasons discussed above.

The remaining references, cited for features of dependent claims, do not relate to the arrangement of a reference tone pattern and tone adjusting patterns as recited in amended independent Claim 1. Accordingly, Applicant respectfully submits that none of Sugiyama, Aruga, Overall, Wiklof remedies the deficiencies of the references discussed above.

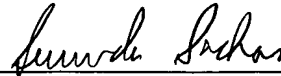
Independent Claims 10, 19, 31, 33, and 35, are amended to include substantially similar features to those discussed above regarding amended independent Claim 1. Accordingly, Applicant respectfully submits that amended independent Claims 10, 19, 31, 33, and 35 patentably distinguish over any reasonable combination of the cited references for at least the same reasons as amended independent Claim 1.

Claims 2-9 and 28 depend from amended independent Claim 1. Claims 11-18 and 29 depend from amended independent Claim 10. Claims 20-27 and 30 depend from amended independent Claim 19. Claims 32, 34, and 36 depend from amended independent Claims 31, 33, and 35, respectively. Accordingly, Applicant respectfully submits that Claims 2-7, 9, 11-16, 18, 20-25, 27-30, 32, 34, and 36 patentably distinguish over the cited references for at least the same reasons as the claims from which they depend.

Consequently, in light of the above-discussion and in view of the present amendments, the present application is believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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